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INFANT FEEDING.



THE FEEDING AND CARE OF INFANTS.—THE SEL-
ECTION AND MODIFICATION OF COWS' MILK.

THE ILLINOIS STATE BOARD OF HEALTH.



Good Christian people, here lies an inestimable loan; take all heed thereof, in all carefulness employ it; with high recompense or with heavy penalty will it one day be required back.



The Illinois State Board of Health, as created by Law, is charged with the general supervision of the interests of the health and life of the people. In view of the great death rate among infants, especially during the summer months, attributable to a large extent to improper feeding and to impure foods, it becomes the duty of the Board to warn the people against those features of infant feeding of the greatest danger to the child and to instruct and advise as to those methods which will reduce the death rate to the minimum.

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INFANT FEEDING

THE FEEDING AND CARE OF INFANTS—THE SELECTION AND HOME MODIFICATION OF COW'S MILK

CIRCULAR ISSUED BY THE ILLINOIS STATE BOARD OF HEALTH,

1906.

“The question whether a child shall be strong and robust or a weakling is often decided by its food during the first three months.

“The problem is not simply to save the child's life during the perilous first year, but to adopt those means which shall tend to the healthy and normal growth of the child.”—Dr. L. Emmett Holt.

THE DEATH RATE OF INFANTS IS EXCEEDINGLY HIGH—ONE-FIFTH TO ONE-THIRD OF ALL CHILDREN BORN DIE BEFORE REACHING THE SECOND YEAR OF LIFE.

The statistics of all localities, both city and country, show that the highest mortality of life is during the first year. In the State of Illinois, about one-fifth of all who are born, die during the first year. In large cities, as in Chicago and New York, this death roll has been increased at times until it reaches the figure of one-third.

One-fifth of all deaths among infants occur during the month of July. The vast majority in the summer months.

Hot weather does not kill babies in itself. Deaths are chiefly due to the effects of the hot weather upon the food.

An exceedingly large number of infants, even those born under the best conditions and afforded the natural food of the mother's milk, fail to weather the storms of the first and second summers. Among the poor and especially among those infants deprived of mothers milk, the death rate assumes shocking proportions.

THE VAST MAJORITY OF INFANTS DYING DURING THE FIRST YEAR DIE FROM IMPROPER FOOD OR THEIR INABILITY TO DIGEST AND ASSIMILATE IT.

While the mortality among all young infants is high, it must be appreciated that digestive disorders are the chief cause of death. It must be further remembered that the mortality among those artificially fed is vastly greater than among those nursed by the mother. The infant deprived of the mother's milk has its chances of life and health materially lessened. The adoption of any other food when the mother is capable of nursing the infant, incurs dangers to the child which makes such action almost criminal.

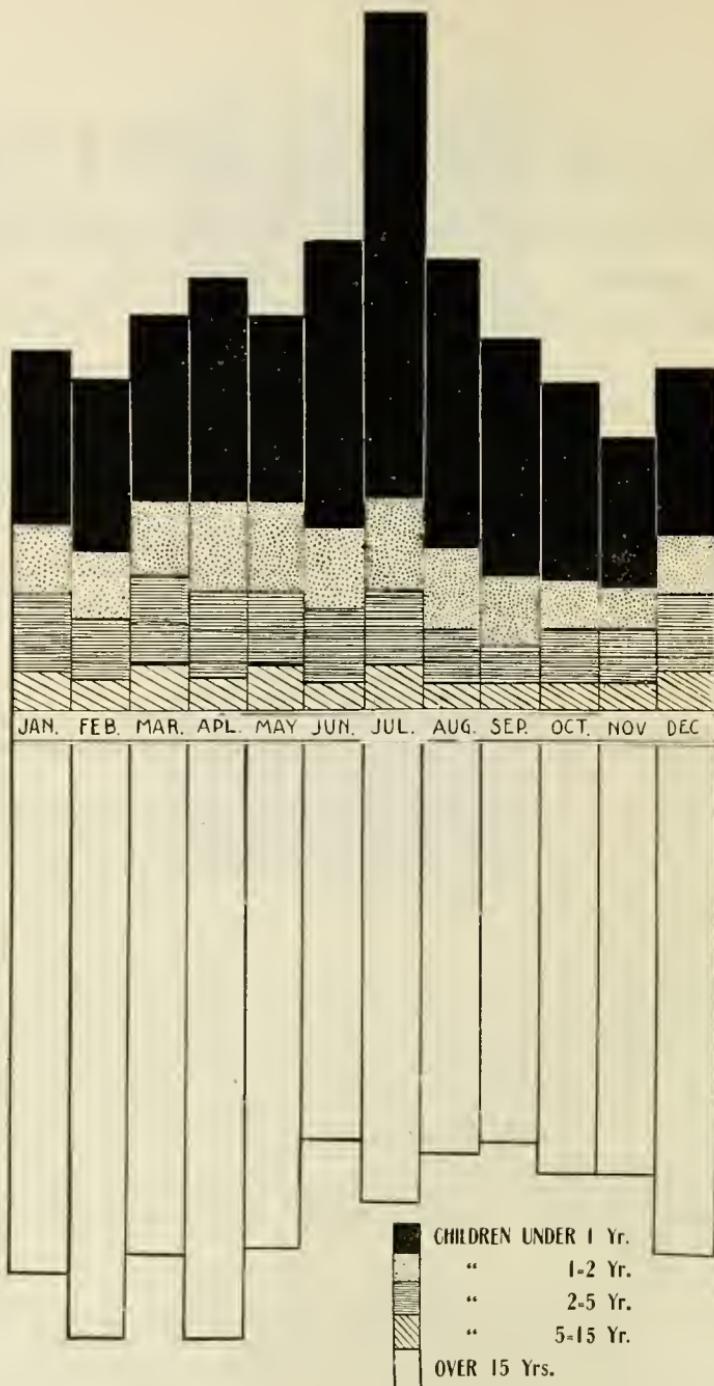


CHART SHOWING MORTALITY IN LARGE CITIES BY MONTHS AND BY AGES.

(It will be seen that during the month of July there were more deaths among those under 1 year of age than among all persons over 15 years.)

BREAST FEEDING.

MOTHER'S MILK IS THE NATURAL AND ONLY PERFECT FOOD FOR THE INFANT. ANY SUBSTITUTION FOR MOTHER'S MILK MUST BE LOOKED UPON AS A DANGEROUS UNDERTAKING JUSTIFIED ONLY BY NECESSITY.

There is no perfect substitute for mother's milk. This applies to the milk of the wet-nurse, to the milk of the cow or the goat, to condensed milk and to the artificial manufactured food so widely advertised.

When it becomes necessary, as it sometimes is necessary, to substitute other food for the mother's milk, the substitute should be a food which is as much like normal woman's milk as possible.

A healthy mother whose baby is able to nurse properly need have little concern as to substitutes for several months.

If the mother is able to nurse and there is no valid reason why she should not continue nursing, the infant should have nothing but its mother's milk for the first six months of life at least.

For many reasons, too lengthy to be discussed here, the physician may decide that the interests of the infant or of the mother require that the infant be weaned. The weaning of an infant is accompanied by so much danger to the child, especially in hot weather, however, that it is the part of wisdom to seek the advice of a physician before undertaking it.

Except under special conditions, weaning should not be attempted until every effort has been made to improve the milk of the mother. If the milk is insufficient, a physician should be consulted before artificial foods are adopted.

When the breast milk, while plentiful and apparently good in quality, fails to nourish the infant, a change of the mother's diet and habits will often give excellent results. If the infant does not increase in weight, the free use of fats by the mother will soon cause an improvement.

The richness of the milk may often be increased by plenty of meat, eggs animal broths and other animal foods. The richness may be decreased by omitting or decreasing these foods and by plenty of fruits and cereals.

Over-eating and too little exercise will often increase those elements in the milk which render it most indigestible. Malt extracts and alcohol in the form of beers and ales increase the richness of the milk, but the regular use of these or other alcoholic drinks frequently does more harm than good. Alcohol has been known to appear in the milk, and stale beer drunk by the mother has occasioned serious illness of the child.

The nursing mother should drink plenty of pure water. She should drink tea sparingly and should not drink strong tea at all. There is no better food for the nursing woman than good milk. She should use it freely.

Foods which may be eaten by some nursing mothers without affecting their babies, cannot be eaten by others. Tomatoes, strawberries and lettuce cannot be eaten by some. For most mothers these fresh foods are of great value and should be eaten freely.

RULES OF DIET MUST NOT BE TOO RIGIDLY MADE. THERE IS NO METHOD OF FEEDING SO IMPORTANT THAT IT SHOULD BE CONTINUED IF IT DISAGREES WITH THE MOTHER. The mother must be in good health to produce satisfactory milk. Any method adopted to increase the quantity or quality of milk must primarily prove beneficial or, at least not injurious to the mother.

DRUGS MUST NOT BE GIVEN TO THE NURSING MOTHER EXCEPT ON THE DIRECTION OF A COMPETENT PHYSICIAN. Opium, senna, rhubarb and other drugs taken by the mother may appear in the milk and may poison the child.

Great fatigue, exhaustion, excitement, sudden fright, grief, anger or passion of the mother have occasioned illness of infants. Under such conditions it is often better to draw the milk and give the infant some other food and to avoid nursing until the mother regains self-control.

The mother herself should appreciate that the comfort and health of herself and her infant will depend greatly upon intelligence displayed in nursing.

The breasts should be kept scrupulously clean. The breasts and nipples should be washed with pure water after each nursing.

During the first day after birth, the child should be put to the breast once in six hours; on the second day, once in four hours. It can be placed to the breast more frequently if it refuses to nurse or fails to obtain nourishment.

A good flow of milk is frequently not established until the fourth or fifth day, and at times, not until the sixth. During the meantime, however, even though the flow be very scanty, the infant should be put regularly to the breast.

There is a tendency, especially on the part of young mothers, to give food to the infant during the time that the flow of milk is being established. This often leads to most unfortunate results and frequently to serious illness. Nothing should be given aside from the mother's milk except a little pure water or a clean linen rag moistened with pure water to suck.

After the third day, during the first month or five weeks, ten nursings in twenty-four hours will be sufficient for the normal infant and no more should be allowed. A healthy child will usually, during the first month, take one long nap of from four to six hours each day. It should not be wakened for feeding during this nap, but aside from this should be fed regularly every two hours. Do not feed more often.

From the sixth week to the third month eight nursings, two and a half hours apart, will be sufficient, with one nursing at night. From the third to the fifth month, the baby should be nursed every three hours during the day time.

Nurse at regular intervals. Don't nurse too often. Don't put the baby to the breast every time it cries. Babies more frequently suffer from over-feeding than underfeeding. If you nurse too often, your milk will become unfit for your baby.

It is easy to get a baby into good habits. It is hard to get a baby out of bad habits. By adopting regular habits of nursing, the mother is given more freedom and more rest and is in better condition to take good care of her child.

The nursing should not last over 20 minutes. Never let the baby go to sleep with the nipple in its mouth.

It is much better to use one breast for each feeding, alternating regularly, than to let the baby nurse at both breasts at each feeding. It is a good plan to keep a memorandum slip of paper arranged as follows so that the breasts are used equally:

Right, 5 a. m.; left, 7; right, 9; left, 11; right, 1 p. m.; left, 3; right, 5; left, 7; right, 9.

Crying during the first few days of life is perfectly natural and even beneficial to the child. It does not indicate illness or hunger and medicines or foods should not be given.

Never give a baby drugs or medicines except under the direction of a physician. What benefited your neighbor's baby may kill yours.

If your baby shows signs of colic don't dose it with paregoric, whiskey, brandy or soothing syrup. Colic is often a symptom of some condition which needs attention. Drugging the baby into insensibility will not remove the cause of illness. Colic is often due to constipation. It may come from cold hands and feet. Keep the baby's hands and feet warm. Give a little castor oil for the constipation. Keep a flannel belly band on the baby summer and winter. Don't drug the baby. When the baby is sick enough to need soothing syrup, it is sick enough to need a doctor. Soothing syrups have killed many babies.

The majority of so-called "Soothing Syrups" contain opium, a deadly poison, one especially deadly to infants. As stated, soothing syrups have killed many babies.

"MRS. WINSLOW'S SOOTHING SYRUP"** is a preparation with which helpless infants have been drugged into insensibility by ignorant or indifferent mothers and nurses for a generation past. This contains opium. There is little doubt but that this nostrum has done incalculable injury to many children, to say nothing of the deaths caused by it.

The great demand for soothing syrups by mothers who wish their babies to "stay put" has caused the birth of a healthy rival to the product of the late "Mrs. Winslow," a compound bearing the touching name of KOPP'S BABY FRIEND." This also contains opium! In fact, *Collier's Weekly*, to which much credit is due for its expose of the nostrums which are such a menace to the lives and health of the American people, states that the preparation is made of sweetened water and morphine—the active principle of opium. Morphine should not be given to a child under ten years of age, except in rare instances, and then only under the direction of a physician. KOPP'S BABY FRIEND, well styled the "King of Baby Soothers," is said to contain in each teaspoonful sufficient morphine to kill an infant.

WEANING THE BABY.

Few mothers are able to nurse their infants after the ninth month without too much of a drain upon themselves and injury to the child. Many women should wean their infants at six months. There is grave danger to the child in nursing too long.

Weaning should be done gradually. Sudden weaning is apt to cause serious illness of the infant. It is usually best not to wean the baby in hot weather.

During the fifth or sixth month the infant may be taught to take food and water from the bottle. This will help materially in weaning.

In changing from breast milk to cows milk, the milk used first should be very much diluted and modified unless the baby has been given a bottle in addition to the mother's milk. In weaning a six months old baby give the milk usually given to an infant one month old (See page 13). If the baby is ten months old, give the milk usually given to a three months old baby. (See page 13).

It is well to begin weaning early, feeding the infant for some time with both breast milk and artificial food.

*Some years ago I heard a prominent New York lawyer, asked by his office scrub-woman to buy a ticket for some "Association" ball, say to her: "How can you go to these affairs, Nora, when you have two young children at home?"

"Sure, they're all right", she returned blithely; "just wan teaspoonful of Winslow's, an' they lay like the dead till mornin'."—*Collier's Weekly*.

WHEN TO ADOPT ARTIFICIAL FEEDING.

Artificial feeding should be adopted when the mother is unable to nurse; when the infant is unable to nurse, when the milk continues to disagree with the infant, when the milk supply remains insufficient, when the health of the infant or mother calls for weaning, when the milk does not contain sufficient nourishment for the baby.

When the milk is good in quality but insufficient in quantity it is better to "help the mother out" by giving the baby some artificial food in addition to the breast milk. This should also be done at the beginning of weaning.

Good artificial feeding is better than bad breast feeding.

Breast feeding should invariably be discontinued under the following conditions:

1. When the mother is a consumptive. Not only is there danger to the child in nursing at the breast of the consumptive mother, but the drain upon the mother herself hastens the progress and fatal termination of the disease.

2. When serious complications follow child-birth, such as severe hemorrhage, child-bed fever, blood poisoning or kidney disease.

3. When the mother is epileptic or suffers from St. Vitus' dance or is so intensely nervous as to require medical attention.

4. When the mother suffers from any chronic disease or is very delicate. Nursing under such conditions is too severe a drain upon the mother and usually unsatisfactory for the child.

5. When the mother has become again pregnant.

Briefly, when the mother is not diseased and the milk is merely deficient in quantity or quality, it is better for the child to have both breast milk and artificial food. When the mother suffers from disease which impairs the healthfulness of the milk, artificial food alone must be adopted.

Extreme sensitiveness of the breasts, even though there may be intense pain in nursing, is not a valid reason for discontinuing nursing. Persistence for a few days usually overcomes this sensitiveness.

Menstruation of the mother does not affect the milk as much as usually believed. It may at times, however, cause slight indigestion but is not a sound reason for discontinuing nursing.

The nursing mother can become pregnant, the oft expressed opinions to the contrary notwithstanding. It is necessary to emphasize this fact, for it is well known that some mothers nurse their children for several months after they should be weaned in the belief that they cannot become pregnant. Could these misguided mothers hear the experiences of those who have used this method of prevention (?), they would soon abandon their folly and cease to give to their helpless infants a milk deficient in quality, the administration of which may work irreparable injury.

ARTIFICIAL FEEDING.

When it has been shown that artificial feeding must be adopted we must select that food which is best for the child and which gives best promise of healthful development. In this selection we must decide between the milk of another nursing woman—the wet-nurse—the milk of the cow and the manufactured infant foods.

Whatever food may be selected it must be remembered that even a little breast milk each day will improve the infant's chances of life and health.

The baby who can have breast milk in addition to the artificial food will do better than if dependent upon artificial food alone. If possible put the baby to the breast if no oftener than thrice a day.

WET NURSES. The wet nurse is by no means as popular as in years past. While the milk of another woman is the ideal substitute for the infant deprived of its mother's milk, there are many objections to the wet-nurse. The expense of keeping a wet nurse is considerable. The pay is high and the cost of keeping another adult in the family is not trifling. The wet-nurse coming from humble walks in life may be a good nurse under her normal conditions. When she enters a home where she is given richer food and lives a life of laziness, her milk often becomes unsuited to the child. To be satisfactory a wet-nurse should live as nearly as possible in the manner in which she has been accustomed.

In hiring a wet-nurse remember that we are entrusting the infant to a source of food which may be lost at any time. The baby is dependent upon the whims and caprices of the wet-nurse, who may leave at any moment without warning.

Unless the nurse is perfectly healthy the child may acquire disease from her. A wet-nurse should never be hired unless she has been thoroughly examined by the family physician.

Civilized people cannot ignore the fact that many babies whose mothers secure employment as wet nurses, die from neglect. A wet nurse should never be employed if her own baby will suffer through her employment. The nervous influences connected with the parting from her own child, often affect the milk of the wet nurse.

COW'S MILK.

Cow's milk and mother's milk differ in many essential particulars. One is suited for the stomach of the calf, the other for the stomach of the baby. As has been aptly stated, the milk of every animal has certain peculiarities which fit it for the stomach of that particular animal only.

Certain changes take place in the milk of the cow, immediately after it is drawn. These continue, so that when the milk is twenty-four hours old, the differences between it and the milk of the mother have materially increased.

Cow's milk undiluted and unaltered is entirely unfit for the infant. If properly diluted and mixed, however, cow's milk is the best substitute for mother's milk.

Cow's milk can be diluted best by either water or decoctions of cereals, barley or oatmeal, or by beef or mutton broth—the latter towards the end of the first year. Oatmeal and beef broth have a tendency to loosen the bowels.

For infant feeding, milk must be fresh and must come from dairies that are known to be absolutely clean. Not over twenty-four hours should elapse between the cow and the baby. Milk over twenty-four hours old cannot safely be used for infants.

The fresher the milk, the more easily it is digested by the infant.

Milk bottled at the dairy and delivered in glass is purer and better than that delivered in the milkman's can. Milk bought from the grocer and dipped from cans is nearly always dirty and unfit for use.

The milk should come from cows that are healthy and from those that feed on good grains and grass. Milk from herds fed on wet malt, brewery grain or slops, should never be used.

Common breeds of cows give better milk than Jerseys, Alderneys, and other finer breeds. The finer breeds are more subject to sickness and disease.

Milk from a herd is better than milk from one cow. Diseases of cows are frequent. If a cow is diseased, the baby taking the milk of that cow is apt to acquire disease. If that cow be of a herd from which the baby receives its milk, the danger is reduced to the minimum. Then the milk from a herd differs less from day to day.

Cleanliness is more important than the richness of the milk. It is better for an infant to have clean milk in filthy surroundings than dirty milk in ideal surroundings. The child may starve on poor milk, but it is poisoned by dirty milk. One reason that breast milk agrees with infants is because it is perfectly clean when it enters the baby's mouth.

Milk will absorb disease and poisonous gases. One bottle of tainted milk may be fatal to the infant.

The essential conditions to be fulfilled in cow's milk which is to be used as a food for infants are, as follows: (1) Freshness: the milk should not be over twenty-four hours old. (2) It should contain no preservatives. (3) It should be from healthy animals, free from tuberculosis and other diseases. (4) It should be clean. (5) It should not be skimmed or otherwise falsified. (6) It should contain no disease germs. (7) It should be from a mixed herd so that the milk will be uniform from day to day. (8) It should be from common or "grade" cows because they are more hardy, less subject to disease, and less susceptible to influences which affect the milk.

Don't use preservatives in milk. Don't buy milk from a dealer who uses preservatives. You can never tell just how much he has used, or how much has been used before the milk reached him, by the dairyman, the wholesaler or commission man. A preservative which may be harmless to an infant in minute quantities, just sufficient to preserve the milk, may be a deadly poison if used in large quantities. Boric acid, borax, formaldehyde and bicarbonate of soda are commonly used to prevent milk from "turning." Health officials or your physician will be able to detect preservatives in milk. If in doubt refer samples to them.*

The honest and intelligent dairyman or milk-dealer is of the greatest aid in saving the lives of babies. He should receive your support and encouragement.

Don't buy cheap milk. Poor milk is dear at any price. Good milk is not dear at the prevailing prices. A good, clean, fresh milk at six or seven cents a quart is very reasonable—a first class milk at eight or nine cents a quart is not high when one considers the price of other commodities. If you must economize on your baby do so on its clothing, not on its food.

It is amusing and yet pathetic to see a parent haggle over the price of the infant's food, endeavoring to save a fraction of a cent on a glassful, and then willingly spend the price of a quart or two on soda, water or beer.

"SCALDING," STERILIZING AND PASTEURIZING MILK.

Good fresh milk which has been kept clean and cold, needs no preservative. It is better to neither "scald," sterilize nor Pasteurize such milk.

In many instances, however, the milk which the mother must give her infant is neither good nor fresh. It has not been kept clean or cold. It sours quickly. It is imperative that steps be taken to render such milk as harmless as possible to the infant and to keep it from spoiling. This is best done by heating the milk, by either "scalding," sterilizing or Pasteurizing.

*Information as to reliable tests for preservatives in milk will be forwarded by the State Board of Health on the application of any physician or health officer.

Sterilization is the heating of milk at a temperature of 212° F. for some time. This renders the milk harder to digest and decreases its food value. It causes several changes in the properties of the milk.

Between dirty milk and cooked milk, however, we must choose of two evils. Sterilization or cooking is the lesser of the two.

If it is necessary to sterilize at all, the sooner we sterilize the better. It is more effective if done at the dairy. In the home, milk should be sterilized or scalded as soon as it is received.

Sterilization will not purify dirty milk. Dirty sterilized milk may be poisonous to the infant.

Pasteurization is a complicated process. Bad results may follow if not done properly. Sterilization renders the milk safer and better, especially where ice is not to be had. Among the poor in larger cities, sterilization is the only proper method of preserving milk.

The use of any cooked milk for a long period of time—whether scalded, sterilized or Pasteurized—is attended with grave risk. The infant dependent upon cooked milk will not thrive so well as the one fed on clean, fresh milk, and must consequently be watched with great care.

The simplest way to scald or sterilize milk is to put it in a double boiler or in a vessel in a pan of cold water. Put it on the stove. When the water has come to a boil, remove the boiler from the stove. Permit the milk to remain in the water for about 20 minutes and cool as quickly as possible. Put it in a fruit jar which has been previously scalded. Keep the cap screwed on the bottle constantly. The cap, as well as the bottle, must be scalded.

In scalding milk, **do not let the milk boil.**

Everything which comes in contact with the scalded milk must be scrupulously clean. It is as easy to get sterilized milk dirty as fresh milk.

In many cities "certified milk" may be secured at a little higher price than ordinary milk. The additional cost is well invested. Such milk is usually pure and clean, from herds of healthy cattle and is made to contain the same amount of cream summer and winter,

There is no milk so pure and so good that it is suited to the digestion of the infant without dilution and modification.

CONDENSED MILK.

Condensed milk is the artificial food most commonly used, especially among the poor. Babies fed on condensed milk alone are often fat, but seldom strong. **A fat baby is not always a healthy baby.**

Condensed milk is easily digested even by very young and frail infants. Its effects are not satisfactory. It may serve a good purpose in time of emergency when pure, reliable milk cannot be secured. Between dirty, impure or stale cow's milk and condensed milk, choose the condensed milk, but it must not be used for any length of time. When traveling or when the milk supply fails, condensed milk often tides the infant over a period of danger.

Condensed milk contains too much sugar and not enough fat. Practically every baby raised on it alone shows signs of rickets or other disease. It should never be given without the addition of fats: fresh cream if possible. In the absence of fresh cream, cod liver oil may be given, 5 to 20 drops at each feeding.

If you use condensed milk get the best that can be had. Borden's Eagle Brand and the Helvetia Brand are known to be well prepared and reliable.

MANUFACTURED FOODS.

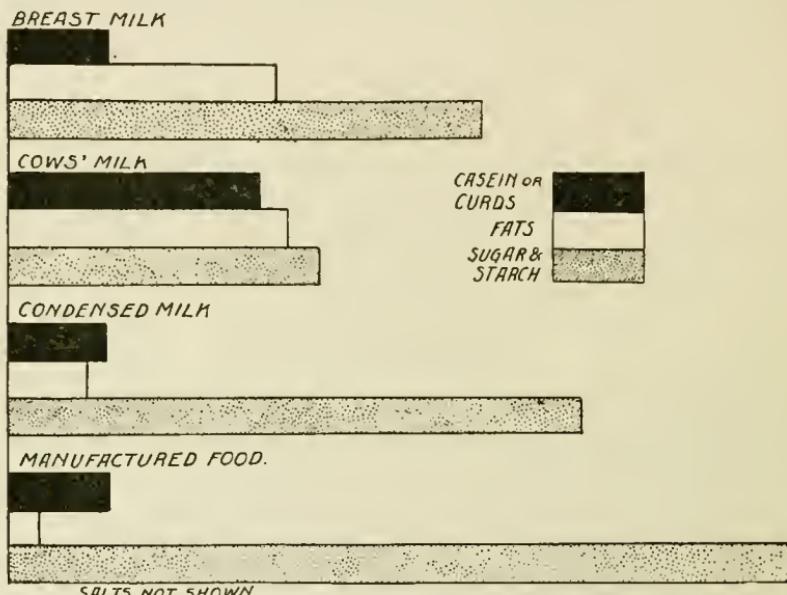
There are many infant foods on the market. Their use is decried by some eminent authorities on infant feeding. It is claimed that they can do much harm; that certain diseases have followed their prolonged use. Other eminent authorities assert that these foods may be of considerable value. Still other authorities, equally as eminent, advocate the use of some of these foods, and hold that they may be advantageously used as an addition to mothers milk, especially after the fifth and sixth month.

The most commonly used foods are classified as Milk Foods, Malted Foods and Farinaceous Foods. Horlick's, Borden's (malted milk) and Mellin's are examples of the second class, and Eskay's of the third.

None of these foods contains sufficient fat. Some have an excess of starch, making them unsuitable for the infant until the latter part of the first year. Some contain too much sugar. None of these foods should be used alone.

The manufacturers of Horlick's Malted Milk assert that it does not require the addition of cow's milk; that it is composed of pure, rich cow's milk reduced to dryness and combined with an extract of malted wheat and barley. The food may be used temporarily, alone, but it is believed for continued use, milk should be added.

Mellin's Food is said to be a dry extract from wheat and malt, and free from cane sugar and starch.



Note—The manufactured food is shown as mixed with water alone. Mixed with milk, as usually directed, the comparison would show it much more like breast milk.

Eskay's Food, according to the manufacturers, contains the more easily digested cereals combined with egg albumen.

An analysis of Horlick's Malted Milk shows that it contains less fat than mother's milk and more sugar, and that it is free from starch. Mellin's Food has practically no fats or starch and much more sugar than mother's milk.

Eskay's food, when properly mixed with milk, resembles breast milk very closely, except that there is some starch present. It is stated, however, that this starch is thoroughly broken up and easily digested and that the egg albumen contained is more easily digested than similar amounts of the albumen or curds of milk.

The chart at the foot of page 10, shows a comparison of Breast Milk, Cows Milk, Condensed Milk and a widely advertised Manufactured Food.

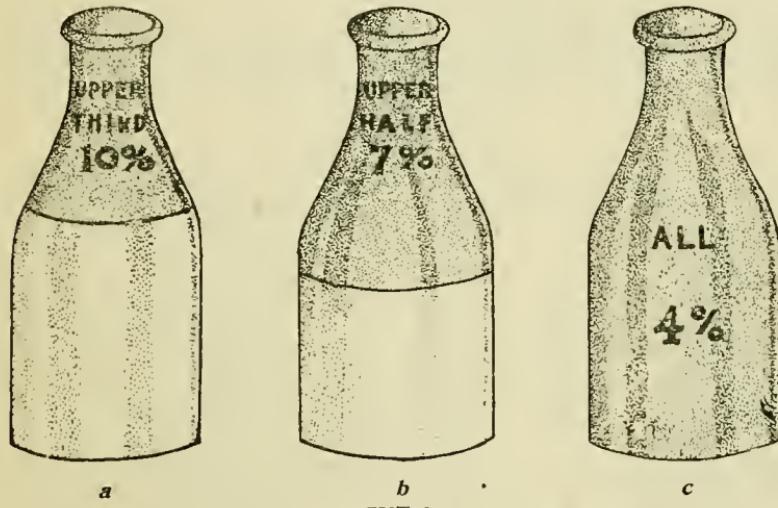
Notwithstanding the conflicting testimony on the value of these foods, and the disadvantages of some for infant feeding, as indicated above, it is well known that their use is recommended by competent physicians and that they are used to seeming advantage by many infants.

If used, they should not, as stated above, be used alone. They should be mixed with diluted cow's milk, in which it is believed that they break up the tough curds and render the milk more digestible. The same advantage, can be attributed to barley water and oatmeal water which, however, do not contain all of the food elements to be found in the best types of the prepared foods.

In using or adopting the artificial foods, as in all cases where the mothers' milk is to be discontinued, it is best to follow the advice of a competent physician.

MILK MODIFICATION.

As stated, cow's milk, properly diluted and modified, is the best substitute for mother's milk. Undiluted and unmodified it is unfit for infant food. Cow's milk must be diluted on account of its richness in curds. When diluted, however, it contains too little fats and sugar. Hence, after dilution, we must add cream and sugar to the milk. This process imitates the milk of the mother as nearly as can be done. It is commonly known as "milk modification." Milk so treated is called "modified milk." "Modi-



CUT I.

fied milk" is now accepted by all authorities as the best food for the infant deprived of breast milk.

Good cows' milk contains about 4 per cent of butter fat. A bottle of good milk may be called "4 per cent milk." After standing until the cream rises to the top, the upper third of a bottle of a good milk contains 10 per

cent of butter fat. This upper third is called "10 per cent milk" or cream. The upper half of a bottle of good milk contains 7 per cent of butter fat and this is known as "7 per cent milk." When buying milk for infant feeding insist upon having "whole milk," never "skim milk." Whole milk should be "4 per cent milk." The following materials are required for milk modification.

Water.—The water with which the food will be diluted should be absolutely pure. The benefits of clean milk are entirely lost if we dilute it with dirty water.

Lime Water.—Lime water is used to overcome the acidity of cow's milk, and to lessen the consistency of the curd. There are some infants with whom it does not agree. Used too freely it may cause constipation. It may be obtained cheaply from the druggist.

Recent investigations by pure food authorities show that many unscrupulous druggists sell ordinary, unfiltered tap water for lime water. In buying materials of any kind for infant feeding, patronize only druggists in whom you have reason to have confidence.

Vichy water is a good substitute for lime water and should be used if the latter disagrees.

Sugar.—Sugar is not added to cow's milk to sweeten it, but to make it conform as nearly as possible to mother's milk. Milk sugar is best. Get it from a reliable druggist. If you can't get pure milk sugar, use cane sugar. If cane sugar is used add only half the quantity that you would of milk sugar.

Cane sugar is seldom adulterated or impure, while milk sugar often contains impurities. For this reason it is safer, unless sure of the reliability of your dealer, to use cane sugar. Loaf sugar is the purest form of sugar and the purest of all foods.

Barley Water.—Barley water is often used in diluting milk for infant feeding and tends to make the curds of milk more easily digestible. Barley water is made as follows: To 2 tablespoonsfuls of barley meal add enough of a quart of cold water to make a thin paste and then add the remainder of the quart of water; stir and boil 15 to 20 minutes. Barley flour is much better than pearl barley and requires much less cooking. Pearl barley should be boiled for 2 to 3 hours. Barley water should not be kept from day to day, but should be made fresh every morning.

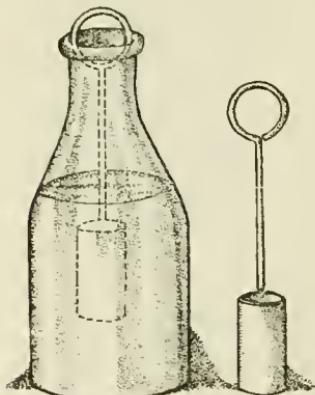
Oatmeal Water.—Oatmeal water is used in the same way as barley water, especially when a laxative effect is desired. To make it, stir 2 tablespoonsful of oatmeal in a quart of boiling water, cover and let simmer for 2 hours. Replace the water as it evaporates so that there will be a quart when done. Strain. Do not use a second day. Make fresh every day.

MILK MIXTURES.

The upper third of a bottle of milk (10 per cent milk), or the upper half (7 per cent milk) may be easily taken off with a spoon or with the little dipper shown in Cut II. This dipper holds just one ounce and is convenient

for dipping and measuring. With it the upper milk may be removed without disturbing the lower milk. It is known as the "Chapin dipper" and may be had at the druggist's at a small cost. In using a spoon it will be remembered that eight teaspoons are equivalent to one ounce, or four dessertspoons or two tablespoons.

During the first four weeks the infant is to be fed, as before stated, every 2 hours and takes about 2 ounces at each feeding. The food should be mixed in the morning for the entire day. It should then be placed in the nursing bottles, enough for a feeding in each bottle, or should be put in a covered glass jar and placed on ice. For the first weeks in life the baby will use 20 ounces a day. The following milk mixtures



CUT II.

are based on that amount. It is easy to estimate the quantities for larger amounts. For a 25 ounce mixture, add one-fourth more of each ingredient. For a 30 ounce mixture add one-half more of each ingredient.

Milk Mixtures.—(From Birth to Three or Four Months of Age.)

1. Milk sugar, 1 oz. (3 level tablespoonsful.)
Lime water, 1 oz.
Enough hot water to make 20 ounces. After the milk sugar is dissolved add two ounces of upper third milk (10% fat).

This is a suitable modified milk for the infant immediately after birth.

2. Milk sugar, lime water and water same as for No. 1, with the addition of 3 ounces of upper third milk.

3. Milk sugar, lime water and water as in No. 1, with the addition of 4 ounces of upper third milk.

4. Milk sugar, lime water and water as in No. 1, with the addition of 5 ounces of upper third milk.

5. Milk sugar, lime water and water as in No. 1, with the addition of 6 ounces of upper third milk.

6. Milk sugar, lime water and water as in No. 1, with the addition of 7 ounces of upper third milk.

Ten per cent milk may be secured as shown in cut 1a from the upper third of the bottle of good 4% milk, or may be secured by mixing 2 parts of whole good milk with 1 part of cream.

If the baby is artificially fed from birth, begin with Mixture No. 1. Substitute the succeeding mixture gradually until the third or fourth month. After the fourth month the above mixtures are not strong enough.

In weaning an older infant use the mixture suited to the age of the child from the above or from following mixtures.

Milk Mixtures.—(From the Third or Fourth Months to the end of the Ninth or Tenth Month.)

For these formulas is used the upper half milk as shown in Cut 1b, or milk containing 7% fat. This may be secured not only from the upper half of the bottle of good milk, but also by mixing 3 parts of good milk with 1 part of cream.

1. Milk sugar, 1 oz. (3 level tablespoonsful.)
Lime water, 1 oz.
Enough hot water to make 20 ounces. After the milk sugar is dissolved add 3 ounces of upper half milk.
2. Milk sugar, lime water and water as in No. 1, with the addition of 4 ounces of upper half milk.
3. Milk sugar, lime water and water as in No. 1, with the addition of 5 ounces of upper half milk.
4. Milk sugar, lime water and water as in No. 1, with the addition of 6 ounces of upper half milk.
5. Milk sugar, lime water and water as in No. 1, with the addition of 7 ounces of upper half milk.
6. Milk sugar, lime water and water as in No. 1, with the addition of 8 ounces of upper half milk.
7. Milk sugar, lime water and water as in No. 1, with the addition of 9 ounces of upper half milk.
8. Milk sugar, lime water and water as in No. 1, with the addition of 10 ounces of upper half milk.
9. Milk sugar, $\frac{1}{2}$ oz.
Lime water, 1 oz.
Enough water to make 20 ounces. To this add 12 ounces of upper half milk.

Of the above formulas, it is seldom necessary for the healthy infant to use a mixture of less strength than No. 5. Nos. 1, 2, 3 and 4 are of value, however, during temporary disturbances of digestion when it is desired to relieve the digestive organs of as much work as possible.

The infant which can take Mixture No. 9 of the above formulas without difficulty is usually able to begin on No. 5, of the following formulas, in which whole milk (4%) is used.

Milk Mixtures.—(For the latter part of the First Year.)

1. Milk sugar, 1 oz.
Lime water, 1 oz.
Enough hot water to make 20 ounces. After the milk sugar is dissolved add 5 ounces of whole milk.
2. Milk sugar, lime water and water as in No. 1, with the addition of 6 ounces of whole milk.
3. Milk sugar, lime water and water as in No. 1, with the addition of 8 ounces of whole milk.
4. Milk Sugar, lime water and water as in No. 1, with the addition of 10 ounces of whole milk.
5. Milk sugar, $\frac{1}{2}$ oz.
Lime water, 1 oz.
Enough water to make 20 ounces. To this add 12 ounces of whole milk.
6. Milk sugar, lime water and water as in No. 5, with the addition of 14 ounces of whole milk.
7. Milk sugar, lime water and water as in No. 5, with the addition of 16 ounces of whole milk.

For mothers who do not get milk in bottles and who have difficulty in using the above formulas, the following excellent mixtures are given. They are simply prepared and prove satisfactory for most infants.

For a new-born baby, or one a month or two old, take 1 ounce of fresh milk; 3 ounces of water; 1 ounce of fresh cream, and 2 level teaspoonsful of milk sugar. This makes about 5 ounces. For 20 ounces use four times as much of each ingredient. This closely resembles mother's milk.

For older babies, take 2 ounces of fresh milk; 2 ounces of water; 1 ounce of fresh cream; 2 level teaspoonsful of milk sugar and a teaspoonful of lime water. Larger quantities may be made by increasing the amounts of each ingredient in proper proportion. More milk and less water will be used as the infant increases in age.

If cream disagrees with the infant its use should be stopped temporarily. The following is a good substitute for mothers' milk suitable for an infant of three months or less: Pure milk, cupful; water, 2 cupsful; sugar of milk, 1 heaping tablespoonful, lime water, 1 tablespoonful.

Milk sugar should always be dissolved in hot water. It sours quickly when dissolved, so not more than one day's supply should be prepared at a time.

Barley Water and Oatmeal Water.—Barley is recommended by many authorities as a proper and valuable substance for infant food. One author of international reputation, Professor A. Jacobi, of New York, states that, if he were restricted to the use of any one food in addition to cows' milk, it would be barley meal or oatmeal. The same authority prefers barley water to oatmeal water for steady diet, inasmuch as the latter tends to relax the bowels.

As a rule these cereal waters are not required until after the sixth or seventh month. Some young infants, however, unable to digest the curds of milk, are able to do so when barley water is added.

For very young infants cereal waters and gruels should not be used except under the direction of a physician.

After the sixth or seventh month, barley water may be added to the milk of nearly all infants with advantage. The barley water may take the

place of the water used in dilution. As the barley water is added, the sugar should be reduced.

When the infant is constipated, oat-meal water should be used in place of the barley water.

A prominent physician of northern Illinois, who has been practicing in the State during the past thirty years, writes as follows in a recent communication to the Secretary of the State Board of Health:

"My food, for babies is **invariably** one heaping tablespoonful of pearl (store) barley, ground in a coffee-mill, and boiled in one quart of water, down to a pint. Strain, and add the same quantity of milk, and let the baby have it. Hundreds of mothers have used this preparation on my direction, and the result has been healthy, growing, fat babies. I think that Professor Jacobi recommended this thirty years ago, and I always use it, and with constant success."

In connection with the above it is deemed proper to state here that many physicians who have devoted much time to the study of the care of infants, hold that barley water or oat-meal water, should not be given to infants until after they are six months, and when given should be in the same quantity as the water recommended for dilution of the milk.

The infant should be fed from a nursing bottle, not from a spoon or cup. The act of sucking is necessary to insure a proper digestion of the food.

MATERIALS REQUIRED FOR MILK MIXING.

For properly preparing milk for the baby, you should have:

One 8-ounce glass graduate;

Use this.

One glass funnel;

One cream dipper (see cut II);

A bottle of lime water;

A supply of absolutely pure water;

Ten nursing bottles which can be easily cleaned (see cut III);

Three black rubber nipples;

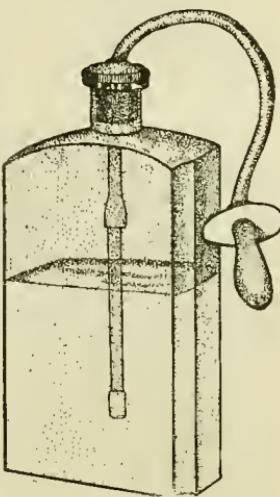
Three bottle brushes for washing out the bottles.

Pitchers, cups, spoons and measures used in mixing the baby's food should not be used for any other purpose.



Cut III with the ounces so that the exact amount given may be easily decided. Square or paneled bottles should never be used. Sour milk and dirt cannot be removed from the corners. This filth remaining will spoil the milk later put in the bottle. Spoiled milk is a poison to the child. (See Cut IV.)

Ten bottles are recommended as it is found much more convenient to mix the food for the



CUT IV.

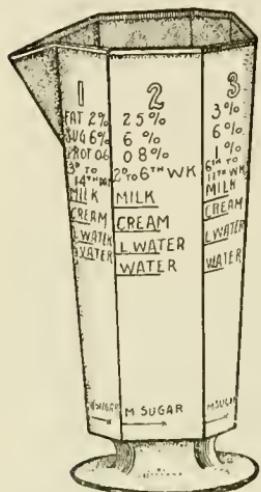
entire day in the morning and to put it in bottles, enough for each feeding, and then to place the bottles *on ice*. The food may be heated by placing the bottles in hot water. Fewer bottles may be used, but no mother should attempt to get along with less than two.

Nipples of black rubber are better than those of white or red. Nipples should be made so that they can be turned and washed inside and out.

Nursing tubes cannot be too strongly condemned.—They cannot be cleaned and milk taken through them, especially in hot weather, becomes filthy and is absolutely poisonous to the infant. (See Cut IV.)

Care of Bottles and Nipples.—After using, bottles should be thoroughly rinsed, washed in soap-suds and again rinsed. When not in use they should be filled with a solution of boric acid, a teaspoonful to the pint of water. Before using again they should be placed in boiling water for 10 minutes. Milk should not be permitted so remain in the bottles after the baby is through feeding.

It is better to have plenty of bottles so that the same bottle will not have to be used too frequently.



CUT V.

Nipples should be washed thoroughly inside and out after each nursing. They should be kept in boric acid solution, a teaspoonful to a pint of water, when not in use.

“Sore mouth,” “colic” and summer complaint often come from improper care of bottles and nipples. **A baby cannot get clean milk out of a dirty bottle or through a dirty nipple. Absolute cleanliness is the most important thing in infant feeding.**

THE “MATERNA MEASURE.”—A simple method of milk mixing in the home is with the “Materna Measure” (Cut V.) This is a 16-ounce measure with six paneled sides. On each is marked the exact amounts of sugar, lime water, water, milk and cream to be used in feeding. The six panels are arranged to measure milk suitable to six ages of infancy. The measure may be had for a small sum from the druggist or instrument house. The method is simple and with it mistakes are seldom made.

FEEDING THE BABY.

Don't taste the baby's food by putting the nipple in your mouth.

Begin with a weak food. (See Mixture 1, first set of Milk Mixtures, page 13.) Too rich food at the beginning may make later feeding difficult. Too much food or too rich food will upset the baby's digestion and may lead to serious illness.

Increase the strength of the food gradually. Overfeeding causes more sickness than not enough food.

See that everything that comes in contact with the milk is absolutely clean.

Keep the food cold until ready to use it. Then warm it to about blood heat. Do not give the baby cold milk. Do not give the baby hot milk.

Give just enough food for a single feeding. If any is left in the bottle, throw it out. Do not offer the same milk to the baby a second time.

Feed the baby regularly. If you start right the baby will be ready for each feeding and will not cry for food between feedings. Regularly fed, the baby is healthier and happier.

TABLE OF TIMES AND AMOUNTS FOR INFANT FEEDING FOR THE FIRST YEAR.

AGE	Hours between feeding.	Number of feedings between 10 p. m. and 7 a. m.	Number of feedings in 24 hours.	Ounces to each feeding.	Ounces in 24 hours.
3rd to 7th day.....	2	2	10	1-1½	10-15
2nd to 3rd week.....	2	2	10	1½-3	15-30
4th to 5th week.....	2	1	10	2½-3½	25-35
6th week to 3rd month.....	2½	1	8	3-5	25-40
3rd to 5th month.....	3	1	7	4-6	28-42
5th to 9th month.....	3	0	6	5-7½	30-45
9th to 12th month.....	4	0	5	7-9	35-45

In increasing the quantity of food never increase more than a half-ounce at a time.

Do not increase the quantity and richness of the food at the same time.

Don't feed more often than suggested above. The stomach needs some rest.

Large babies require more food than small babies.

The weight is the best indication of the success of feeding. After the second week the baby's weight should increase regularly. Loss of weight is a danger signal that must not be ignored.

The character of the stools is an important guide in infant feeding. Foul smelling, greenish or frothy stools indicate illness. Diarrhea is often the forerunner of fatal sickness. When the stools are unnatural in character or when there are more than four movements a day a physician should be called. ***Neglect of the first symptoms of indigestion may lead to the serious illness or death of the child.***

Never give patent medicines, drugs or nostrums for indigestion. As a rule drugs are not needed; often they are dangerous. Proper feeding will usually overcome the trouble. In correcting errors in feeding, the physician is your best adviser.

OTHER FOODS FOR THE FIRST YEAR.

No other food than milk should be given until the end of the sixth or seventh month except on order of a physician. Even after the seventh month, other foods should be given sparingly and judiciously. The chief secret of successful infant feeding lies in keeping the child largely on milk until well into the second year. There is far less necessity for a mixed diet or ordinary foods than is generally supposed.

After the seventh month gruel made of barley, arrowroot, or oatmeal may be given, beginning with very small quantities. Four ounces of thick, strained oatmeal and one-half ounce of orange juice may be added to the daily allowance of food.

The quantity of gruel may be increased gradually as the child becomes older.

Pure, whole milk may be allowed in some cases after the ninth month. At about the same time the child may have a crust of bread or a small piece of zwiebach.

Beef, mutton or chicken broth, thoroughly strained, may be substituted for or added to the food after the tenth month. Soups and broths for infants should be very carefully prepared, should be free from excess of fat or bits of meat and should be very sparingly seasoned.

The cutting of the eight incisor or front teeth, which occurs usually during the twelfth month, may be taken as Nature's indication that the child requires other food than milk. At this time, if the infant is well and strong, a little stale bread may be given with fresh milk in place of one of the regular feedings. This may soon be supplemented by a small quantity of well cooked hominy, oatmeal or corn meal mush, given with constant consideration of the fact that these are the less important and milk the most important of the articles of food.

Stale bread liberally buttered satisfies the infant's desire for solid food and affords it an easily digested and nourishing form of fat, after it is found that the foods mentioned above are taken without difficulty or bad results.

At fifteen months a soft boiled egg may be given at the noon feeding.

Fresh beef-juice may be given in the latter part of the first year and, at times, earlier, in quantities of not over two teaspoonsfuls daily.

Beef juice is best prepared by broiling a piece of lean beef very lightly and expressing the juice with a lemon squeezer. Two or three ounces can be obtained from a pound of meat.

Beef tea, made from the extracts of beef to be found upon the market, may be given in small quantity after the first year, but it must be remembered that there is no nutrition in beef tea and it must not be given in the place of a regular feeding.

Many practitioners advise the use of these preparations much earlier than here stated, especially if the milk disagrees or fails to nourish the infant. They are regarded as especially valuable when rickets is threatened or when the teeth are slow in development.

Orange juice is of the greatest value and will agree perfectly with most children. It is a safe precaution to give a half-ounce of orange juice each day to all children over six-months of age.

Do not feed the baby anything except its regular food.

Do not feed the baby at the table. Potato, meat, fruit, pickles and all other table foods are absolutely poisonous to the infant. Hundreds of babies have been killed by mistaken parents giving them such foods.

When sixteen teeth have developed, other and more solid foods may be given. Throughout the entire period of infancy, however, the food should be selected with the greatest care and given moderately. A piece of rare roast beef to suck, bread with dish gravy (not the heavy gravies thickened and highly seasoned), soft boiled or poached eggs, may form additions to a dietary which may be extended gradually to meet requirements as the baby develops into childhood. But for infant or for child, overfeeding is far more injurious than underfeeding.

THE CARE OF THE BABY.

Bathe the baby every day. A clean baby is happier and healthier than a dirty baby. Babies bathed regularly stand the hot weather better than those not bathed. During the hot weather it may be well to bathe the baby twice or three times daily. No baby was ever yet "washed out of the world." Never bathe within an hour after feeding. It is a good plan to give the baby its bath, then its bottle and then a nap.

Take good care of baby's skin. If the skin is irritated the baby will be uncomfortable. An uncomfortable baby is rarely a healthy baby. Use soap sparingly in the bath. Never use it if the skin is irritated or raw. Use water in which a teacupful of bran tied in a cheese cloth has been agitated. When soap is used great care should be taken that it is the purest kind.

For nettle rash or prickly heat, add to the basin of water a teaspoonful of bicarbonate of soda (baking soda) or a tablespoonful of vinegar. After bathing baby in summer with this preparation leave a slight moisture on the skin. Talcum powder can be used between the folds of flesh.

During the summer dress the baby lightly. Strip the baby on hot days and let it lie around naked for a few hours indoors.

Keep the baby out of doors as much as possible, but avoid the hot sun. The baby must have fresh air. A few hours in the parks every day or two may save the life of the baby living in crowded city houses.

A trip to the country is often of great advantage to a baby in summer time. The lives of many babies suffering from "summer complaint" have been saved by taking them to the country. Of still greater advantage is a trip to a higher altitude and to a cooler climate, in close proximity to a large body of water.



Even in the country a baby may not thrive in the heat of mid-summer. In such a case a change to a higher altitude and a cooler climate is called for, especially if diarrhea has set in. It may be the means of saving the baby's life. Too much stress cannot be laid on the advantages of keeping the baby close to water in the summer. An ideal location will be found in a heavily wooded region on the banks of a lake or bay. Too much sunshine will do the baby harm. Natural shade is necessary for its comfort.

Northern Illinois is dotted with lakes. Good accommodations can be found near the majority. These lakes are easily available to the mothers in central and southern Illinois, who have sufficient means to even take their babies to the country. If they desire to go further north, Lake Michigan and its contiguous great bays on the shores of Michigan and Wisconsin can be easily reached.

A trip to a northern climate can now be made without any discomfort. During the past few seasons it has been possible for a mother living in central-southern Illinois to enter a sleeper at midday, and be carried without change to far northern Michigan, arriving at the various resorts on Grand Traverse or Little Traverse Bays, in time for an early breakfast.

Wonders have been accomplished by a change to a northern climate. Infants suffering from an apparently uncontrollable summer diarrhea and seemingly doomed to die, have rapidly regained health and strength after living a few days in the pine woods bordering on one of the bays of northern Michigan.

A simple trip on Lake Michigan, even of no greater distance than the nearest Michigan shore may restore a sick baby's health and strength.

When traveling with a sick baby, the mother should not depend on milk purchased en route. Of its purity or source she knows nothing. She should take with her sufficient foods,—cows milk, condensed milk or one of the manufactured foods, to last the baby during the trip. It is better that the food be mixed before leaving home, and put in the nursing bottles ready for use when heated. Sufficient drinking water for the baby's use should also be taken along.



other accessories to the nursing bottle.

A soft flannel belly band is a great protection to the baby. It will prevent the injurious effects of sudden changes in the temperature.

The baby must not be permitted to "take cold". Because the close proximity of water is beneficial to a baby in summer, it does not follow that the baby can be plunged into the water. The baby should be bathed in a room warmed to a temperature of at least 75 degrees, and guarded against draughts. The temperature of the water should not be less than 80 degrees. Much harm has been done by immersing babies in the surf.

There will be no harm in sponging the baby's neck and feet (if over one year) with cold water at night, and follow with a brisk rubbing. This in many cases will prevent the taking of cold.

A child of two years can run on the sands in its bare feet, occasionally stepping into the water, but no surf bathing under three years.

The greatest care should be used in the selection of the baby's diapers at all times, and especially during the summer months when it is so easy to

A basket for carrying milk when traveling may be found on the market at a moderate price. This basket is lined with metal and felt or mineral wool and contains chambers for ice and milk bottles. In it milk will be kept in practically as good condition as in the home refrigerator. With this basket a sufficient supply of milk may be carried to supply the infant en route from practically any Illinois point to the woods of northern Michigan. The basket will also carry an alcohol stove, supply of alcohol, extra nipples, brushes and

overheat or irritate the bladder and bowels. The diapers, as a rule should be made of the softest cotton cloth. They should be washed with pure refined soap and after being thoroughly rinsed should be well aired and dried.

Diapers, freshly washed, should never be put on a child suffering with diarrhea. If there are no diapers on hand which have been washed several days previous, then the mother should go through the house and gather up all the clean soft pieces of old linen and muslin she can find, and cut them into proper shape for use as diapers. In summer diarrhea the ordinary recently washed diaper must never be used. The mother should use instead soft pieces of old, long-ago-washed, clean linen or muslin. If the supply in her own house is insufficient, let the mother borrow from other mothers who will be glad to come to her assistance. After "changing" baby use sweet oil on the irritated surfaces instead of powder.

Neither nurse nor mother should ever put her fingers into baby's mouth without first washing them.

Don't have the baby sleep in the same bed with an adult. If there is no crib make a bed for the baby on a couch or chair.

Don't let the baby put dogs or cats close to its mouth.

Don't try to make the baby walk. It will walk when it gets ready. Few babies can walk at twelve months; none should.

Don't take baby out-of-doors on an empty stomach.

Every baby requires water in addition to its food. In hot weather especially give a drink of pure water several times a day.

A drink of pure water or of thin barley water, without milk, is excellent for a child of six months or more if it awakes in the night and cries for food. It really needs nothing more.

A few words in conclusion as to baby's teething. The first—the two lower front teeth—are usually cut when the baby is from six to seven months old. Some babies cut their teeth with little trouble; others are restless, uneasy and wakeful. The latter is especially the case if the baby be constipated.

The teeth are usually cut in pairs: first the two lower (in the center), next the two upper, then the outside two above, then two below, next to those first cut. These teeth usually are present by the twelfth month. The cutting, however, does not always follow the above order, and all children do not cut their first teeth by the sixth or seventh month.

For the sleeplessness and irritability which so often accompany teething, much can be done by the mother. Drugs should not be given, except under the direction of a physician. A hot foot bath will often have a soothing effect by relieving the congestion in the head and mouth. Mustard can often be added to the foot bath with benefit. A little castor oil will be beneficial, for a good movement of the bowels will relieve congestion in the gums. The mother's finger dipped in syrup of lettuce can be gently carried over the tender and inflamed gum, and now and then a little firmer pressure may allow the point of the tooth to free its way through. The baby may be allowed to bite on a small chicken or ham bone, or if over nine months, on a piece of rare roast beef.

Beware of soothing syrups which merely "dope" the baby, and often cause great injury.

Published by order of the State Board of Health.

James A. Egan, M. D.,

April 2, 1906

Secretary.

SUGGESTIONS TO DAIRYMEN AND MILK DEALERS.

The production of a good, clean milk is not the complicated business it has often been regarded. It requires only reasonable knowledge, reasonable intelligence and reasonable care.

The following suggestions, if observed, will do much toward securing a good, clean milk. Whenever it is practicable to do so, milk buyers should see that their dairymen live up to the standards at least this high:

Don't buy Jerseys, Alderneys or other fine grade cows. If you have Jerseys and Alderneys, cross breed them with common, hardy stock like Durhams and Holsteins. Common breeds do not give as rich milk, but it is more digestible. Common grade cattle are harder and are not subject to disease as much as are the finer grades.

Have your cows tuberculin tested to show that they are not afflicted with tuberculosis. Consumption may be acquired from the milk of cows so diseased.

Feed your cows clean, dry food. Slops and brewer's grains are unfit foods for milk cows. Cabbage and other strong tasting foods give a strong taste to the milk.

Do not turn your cows into fresh pastures too suddenly in the spring. Barn-fed cows, turned at once into unripe grass, give milk which often causes diarrhea and serious illness.

Keep the weeds out of your pastures. Weeds eaten by cows often make the milk strong and unfit for use.

Fill up the mud holes and muddy ponds in your pastures. Wallowing in mud holes makes the cow filthy. Drinking water from muddy ponds is unwholesome for dairy cows.

No building should be used for dairy cows which is not well lighted, ventilated and drained.

Stable floors should be solid and easily cleaned. They should be so slanted as to give good drainage. Stable drains should be connected with public sewers, if possible.

Every stable should be provided with covered water-tight receptacles for dung and other refuse. Refuse should not be allowed to accumulate on the stable floor or in the barnyard.

No water closet, privy, urinal, cess pool, inhabited room or work shop should be permitted to remain in a dairy stable. Chickens, hogs, horses, sheep and goats should be excluded from the cow barns.

Five hundred cubic feet of air space should be allowed for each cow in the barn. No stall should be less than four feet wide.

Cow stables should be kept clean and should be whitewashed frequently. Dung and refuse should be removed from cow barns every day. In the best dairies the stables are cleaned twice daily.

Barn yards should have solid ground in them. Cinders or gravel may be used to good advantage. There should be no mud holes. The barn yard should be graded for quick drainage.

Each barn yard should be provided with good drinking troughs which may be easily cleaned. It is better for the cows and better for their milk that the drinking water be warmed in very cold weather.

Keep your cows clean. The best dairymen have their cows curried once or twice daily. This prevents the falling of loose hair or dirt into the milk during milking. The currying should be finished at least twenty minutes before the milking begins.

The udders should be washed with pure water before each milking. The hands of the milker should be absolutely clean.

The first milk drawn from the udder contains the dirt and filth which have accumulated in the udder. The first few streams should be drawn into a waste bucket. This should not be mixed with the milk which is to be sold.

Milk is purer and better if drawn into pails covered with perfectly clean cheese-cloth. The milk filters through the cloth and many impurities are removed. Such cloths should not be used again until they have been boiled.

Do not keep the milk in the barn until several cows have been milked or until the cans or pails are filled. The milk of each cow should be hurried at once to the dairy house and cooled as quickly as possible. Milk standing in open vessels in the stables takes up foul odors and is contaminated with dust and dirt.

Rapid cooling is the greatest secret of pure milk production. Germs grow rapidly in warm milk. Germ growth is checked when the milk is cooled. The quicker the cooling the purer the milk will be. Cool the milk at once after milking and keep it cold.

Every can, dipper, pail, measure or other utensil used in handling milk should be boiled frequently and kept absolutely clean.

After cooling, the milk should be immediately bottled and packed in ice. All milk should be bottled in the dairy. The customer is justified in refusing to buy milk delivered in cans.

Use no adulterants of any kind in your milk.

If the milk is bloody or slimy, throw it away. Also throw away any milk in which dirt has fallen.

Never sell the milk of a sick cow. Every dairymen should have a small lot where sick cows may be separated from the herd. Isolation of sick cows will often save the entire herd from disease.

Milk from cows with cracked or sore udders should never be sold. It is often absolutely poisonous to delicate infants. Remember that your milk goes not only to strong men, but to delicate babies as well.

Do not use the milk from a cow twenty days before calving nor for three to five days after.

Dairymen having healthy herds should not permit their calves to drink skim milk from cows of which they know nothing. Skim milk from creameries, often used by dairymen for feeding, has caused widespread disease in healthy herds.

Aside from the obligations imposed upon the dairymen, in justice to his customers, to sell good clean milk, it must be remembered that the laws of the State of Illinois establish certain standards for milk and provide penalties for their violation.

Under the provisions of the law it is a misdemeanor to—

(1) Adulterate milk for the purpose of sale for human food, with water or any foreign substance.

(2) Knowingly sell for human food, milk from which the cream has been taken, without the purchaser being informed or knowing of the fact.

(3) Knowingly sell for human food, milk from which what is commonly called "strippings" has been taken, without the purchaser thereof being informed or knowing the fact.

(4) Knowingly sell for human food, milk drawn from a diseased cow, knowing her to be so diseased as to render her milk unwholesome.

(5) Knowingly sell for human food, milk so tainted and corrupted as to be unwholesome.

- (6) Keep cows for the production of milk for sale or exchange in an unhealthy condition.
- (7) Knowingly feed cows upon food that produces impure, diseased and unwholesome milk.
- (8) Offer for sale in any city of the State any milk from which the cream or any part thereof shall have been taken, or sell the same except as "skimmed milk," and fail to have each can or vessel in which such milk is carried or exposed for sale, plainly and conspicuously marked with the words "Skimmed Milk."

Violations of any of these provisions of the law are punishable by fine or imprisonment or both.

The law specifically provides that the addition of water or any foreign substance to milk or cream intended for sale or exchange is an adulteration, and that any milk that is obtained from cows fed on distillery waste, usually called "swill," or upon any substance in a state of putrefaction, is impure and unwholesome.

In accordance with the law approved June 7, 1897, the standard of analysis for milk in this State as to ingredients and preparations shall be: Water, 88 per cent; milk solids, 12 per cent, and such milk solids shall contain not less than 3 per cent of butter fat.

THE CARE OF BABIES.

(Editorial in St. Louis Republic.)

A very useful and interesting pamphlet has been issued by the Illinois State Board of Health on the care of babies in summer. While this pamphlet is sent to physicians it is prepared rather for home distribution, and will be mailed to anybody who will make a request upon Doctor J. A. Egan, the Secretary, at Springfield. In addition to practical advice on the care of infants there is valuable information for mothers. The explanations and instructions are presented to the best effect by means of numerous illustrations.

* * * * *

The special virtue of the pamphlet issued by the Illinois Board of Health is its clearness. It is written, not for physicians, but for mothers. Technical terms are avoided. The directions are set forth with magnified distinctness by means of illustrations. The contents embrace instructions on pure milk, diet, artificial feeding and the general care of infants, as well as information to mothers regarding the preservation of their own health.

That the proper care of infants would reduce the mortality and tend to improve the adult health is a prospect which should increase interest in authoritative advice. What mothers do not know about the care and health of themselves and their children physicians do know; and what the physicians know is of particular usefulness because it is knowledge gathered from many sources in regular practice. The summer is the time for devoting extra care to infants. And that care should be regulated in the manner propounded in such pamphlets as those which the ever-alert and ever-busy Illinois State Board of Health is circulating in the homes.

FOR YOUR BABY OR YOUR FRIEND'S BABY.

(Chicago Examiner)

The Illinois State Board of Health believes in babies, and healthy babies. The Board has printed a pamphlet on "Infant Feeding," with a subtitle, "Save the Babies."

The pamphlet is well written. It is not filled with "don'ts" but is strong on suggestions as to what to do.

A few days ago the editor of the "EXAMINER" wrote to Dr. James A. Egan and told him that if he would send the pamphlets to this office the "EXAMINER" would distribute them. Dr. Egan sent a consignment yesterday.

So, if you have a baby, or a friend who has a baby, and you want to see that baby lead a healthy young life, call at the "EXAMINER" office and get a Baby Health pamphlet.

If you cannot come, send your name and address and a pamphlet will be sent you. The "EXAMINER" will stand the postage.

This is one of the best written books on the subject we ever saw.

It is for the learned and unlearned. It deserves to circulate, and just to help a good cause along and to help the babies the "EXAMINER" wants to give the work of the State Board of Health publicity.

IMPORTANT NOTICE

The Illinois State Board of Health has published a circular on the CAUSE AND PREVENTION OF CONSUMPTION, a preventable and curable disease, but one which kills between 7,000 and 8,000 persons in Illinois every year; kills men and women in their prime.

This circular contains chapters on the following subjects: The CAUSE OF CONSUMPTION, THE SYMPTOMS OF CONSUMPTION, HOW TO AVOID CONSUMPTION, HOW THE SPUTUM MAY BE DESTROYED, IF YOU HAVE CONSUMPTION, THE HYGIENE OF THE SICK-ROOM, CONSUMPTION IN SCHOOLS, AS TO CHANGE OF CLIMATE, AND AS TO THE TREATMENT OF CONSUMPTION IN ILLINOIS.

Copies of this circular will be sent free of charge to any person who applies to the Secretary at Springfield.

¶ In consumption, in the *diseases of infancy and childhood*, in fact in all diseases it is essential that the premises be kept in a sanitary condition. All decaying animal and vegetable matter and every kind and source of filth in and about the house should be removed and disinfectants freely used. Surface drains and gutters, out houses, privies, shelters for domestic animals, fowls, etc., and basements and cellars should receive close and constant attention and Standard Disinfectants No. 1 and 4, described on the following page, should be used freely and regularly in such places.

This list of Standard Disinfectants is taken from the CIRCULAR ON CONSUMPTION above referred to.

THE ILLINOIS CIRCULAR ON CONSUMPTION

“We have received a copy of a circular just issued by the Illinois State Board of Health on ‘*The Cause and Prevention of Consumption*.’ We regard it as the most complete and compact statement of the cause and prevention of this all-too-universal and fatal disease that we have seen. If a copy of it could be put in every home in the land and was read and its precepts heeded, Consumption would be reduced fifty per cent in ten years.”—From Iowa Health Bulletin, August, 1904, published by the Iowa State Board of Health.

Standard Disinfectants

The following are simple, cheap and most reliable disinfectants.

STANDARD DISINFECTANT No. 1.

Four per cent solution of Chloride of Lime.

Dissolve Chloride of Lime of the best quality, in water, in proportions of six ounces of lime, to one gallon of water.

This is one of the strongest disinfectants known. Discharges from the bowels of a patient suffering from a contagious or infectious disease, should be received in a vessel containing this solution, and allowed to stand for an hour or more before being thrown into the vault or water closet. Discharges from the throat or lungs should be received in a vessel containing this solution.

Chloride of Lime in powder may be used freely in privy vaults, cess pools, drains, sinks etc.

Instead of the solution of chloride of lime, carbolic acid may be used for the same purpose, in a strength of $6\frac{1}{2}$ ounces to the gallon of water. This makes a 5 per cent solution of carbolic acid.

STANDARD DISINFECTANT No. 2.

Bichloride of Mercury. 1-500.

Dissolve corrosive sublimate and muriate of ammonia in water, in the proportion of two drachms (120 grains, $\frac{1}{4}$ ounce) of each to the gallon of water. Dissolve in a wooden tub, barrel or pail or an earthen crock.

Use for the same purpose and in the same way as No. 1. Equally effective but slower in action, so that it is necessary to let the mixture (disinfectant and infected material) stand for about four hours before disposing of it. This solution is odorless, while chloride of lime solution is often objectionable in the sick room on account of its smell.

STANDARD DISINFECTANT No. 3.

Bichloride of Mercury, 1-1000.

Dissolve one drachm (60 grains— $\frac{1}{4}$ ounce) each of corrosive sublimate and muriate of ammonia in one gallon of water. Dissolve in a wooden tub, barrel or pail or earthen crock.

Use for the disinfection of soiled underclothing, bed linen, etc. Immerse the articles for four hours, then wring them out and boil them. This solution is excellent for wetting the floors of offices, stores, workshops, halls and school rooms before sweeping.

Mixed with an equal quantity of water this solution is useful for washing the hands and general surfaces of the bodies of attendants.

~~Caution~~ Chloride of lime, carbolic acid and corrosive sublimate are deadly poisons.

STANDARD DISINFECTANT No. 4.

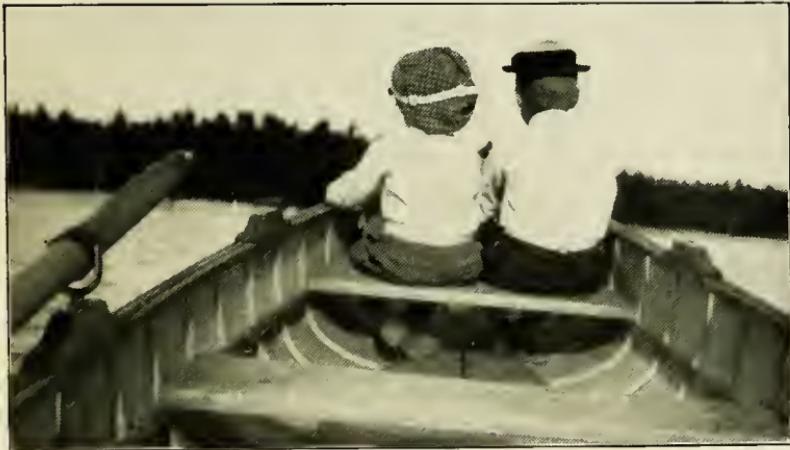
Milk of Lime (Quick Lime.)

Slack a quart of freshly burnt lime (in small pieces) with three-fourths of a quart of water—or, to be exact, 60 parts of water by weight with 100 of lime. A dry powder of slack lime (hydrate of lime) results. Make milk of lime not long before it is to be used by mixing one part of this dry hydrate of lime with eight parts (by weight) of water.

Air-slacked lime is worthless. The dry hydrate may be preserved some time if it is enclosed in an air tight container. Milk of lime should be freshly prepared, but may be kept a few days if it is closely stoppered.

Quick lime is one of the cheapest of disinfectants. The solution can take the place of chloride of lime, if desired. It should be used freely, in quantity equal in amount to the material to be disinfected. It can be used to whitewash exposed surfaces, to disinfect excreta in the sick room or on the surface of the ground, in sinks, drains, stagnant pools, etc.





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